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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,484	11/25/2003	Joseph D. Guthrie	01-0942 ESCM 370109-00004	5979

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EXAMINER	
SELLMAN, CACHET I	
ART UNIT	**PAPER NUMBER**
1762	

DATE MAILED: 01/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/721,484	Applicant(s) GUTHRIE ET AL.	
	Examiner Cachet I. Sellman	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) *17 and 18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/5/2004*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 4-6 and 8 -15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hitchcock et al (US 4452374) in view of Kremkau (US 4044187).

Hitchcock et al. teaches a process for manufacturing draw-redraw food and beverage cans using a laminate or extrusion coated steel sheet having an irradiated multilayered synthetic thermoplastic resin coating, which is composed of a ethylene polymer (polyolefin). Hitchcock et al. teaches that the polymer can be irradiated with an electron beam at any time in the process of making the can (i.e. before or subsequent to the application of to the steel substrate or after the formation of the can body) (column 6, lines 28-36).

Hitchcock et al. does not teach scissioning polymer chains by irradiating the coating with electron beam to improve resistance to "feathering" and "angel hair" formation as required by **claim 1**.

Kremkau discloses a method for increasing bond strength, seal strength, and dimensional stability of film laminates by irradiating a polyolefin using an electron beam

dosage of about 2- 20 megarads, forming a laminate, and then irradiating the entire laminate using an additional dosage between 2- 20 megarads (column 1,lines 6-9; column 3, lines 11-13 and abstract). Kremkau teaches that the laminates made using this process showed "superior" resistance to delamination and exhibits good dimensional stability under abusive conditions (column 4, lines 8-11). The laminates formed using this method are good for food products (column 4, lines 2 –6). Irradiating the crosslinked layer with a second radiation of 2-20 megarads will inherently result in the scissioning of polymer chains because the in the specification the application states that applying additional radiation of 2-20 megarads to an already crosslinked polymer will result in chain scissioning.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the process of Hitchcock et al. to include the step of irradiating the already crosslinked polymer as taught by Kremkau in order to increase its resistance to delamination. One would have been motivated to do so because Hitchcock et al. teaches a process using a polyolefin coating and irradiating the polymer to increase its resistance to delamination and Kremkau teaches how performing the second irradiation after laminating increases bond strength which prevents delamination therefore one would have a reasonable expectation of success in forming the draw-redraw can with "superior" resistance to delamination.

Hitchcock et al. further teaches that the can is formed using a steel sheet (abstract) as required by **claim 2**. The polyolefin can be a propylene-ethylene co

polymer (column 3, lines 31-45) as required by **claim 4**. The Hitchcock et al. teaches the polymer can be maleic anhydride (column 3, lines 61-63) as required by **claim 6**. The polymer coating can be applied to the steel using extrusion coating or laminating (column 1, lines 10-14) as required by **claim 8**.

As stated above, Kremkau teaches that the irradiation dosage is 2 – 20 megarads as required by **claim 9**.

As established above, irradiating the already crosslinked polymer will result in chain scissioning. The chain scissioning inherently results in an increase in embrittlement because the applicant states in the specification that "one effect of chain scissioning is an increase in the brittleness of the polymer" and that the embrittlement provides a reduction in angel hair and feathering as required by **claim 10**.

3. Claims 1, 4-10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtusuki et al. (US 4308084) in view of Kremkau (US 4044187).

Ohtusuki et al. teaches a process for preparing laminate for packaging foodstuff, which consists of laminating an aluminum substrate to at least one polyolefin film. The polyolefin are subjected to various chemical and physical treatments, or to ultraviolet irradiation, electron beams or the like to improve its adhesiveness to other materials (column 2, lines 1-6).

Ohtusuki et al. does not teach using electron beam irradiation to scission the polymer chains to improve resistance to feathering and angel hair formation as required by **claim 1**.

Kremkau discloses a method for increasing bond strength, seal strength, and dimensional stability of film laminates by irradiating a polyolefin using an electron beam dosage of about 2- 20 megarads, forming a laminate, and then irradiating the entire laminate using an additional dosage between 2- 20 megarads (column 1,lines 6-9; column 3, lines 11-13 and abstract). Kremkau teaches that the laminates made using this process showed "superior" resistance to delamination and exhibits good dimensional stability under abusive conditions (column 4, lines 8-11). The laminates formed using this method are good for food products (column 4, lines 2 –6). Irradiating the crosslinked layer with a second radiation of 2-20 megarads will inherently result in the scissioning of polymer chains because the in the specification the application states that applying additional radiation of 2-20 megarads to an already crosslinked polymer will result in chain scissioning.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the process of Ohtusuki et al. to include the steps of irradiating polymer before and after the laminating process taught by Kremkau in order to increase its resistance to delamination. One would have been motivated to do so because Ohtusuki et al. teaches a process using a polyolefin coating for use in packaging foodstuff that has resistance to deterioration or delamination without imparting deleterious substances to the packaged food (column 2, lines 50-55) and Kremkau teaches how performing the second irradiation after laminating increases bond strength which prevents delamination therefore one would have a reasonable

expectation of success in forming the food packaging laminate with "superior" resistance to delamination.

The polyolefin used in this process can be polyethylene, polypropylene, ethylene-propylene, copolymers and polybutene and maleic anhydride (abstract) as required by **claims 4 and 6**. In regards to **claim 5**, the applicant requires up to 50 mole percent of a co-monomer, this limitation includes 0 % therefore this claim is met by the prior art. The maleic anhydride is used in the amount of 0.01 – 30 parts by weight (column 5, lines 54-56) as required by **claim 7**. The polymer is applied to the metal substrate using heat rolls or an extruder (column 9, lines 10-16) as required by **claim 8**.

As mentioned above, Kremkau teaches the polymer is irradiated with 2 – 20 megarads as required by **claim 9**. As established above, irradiating the already crosslinked polymer will result in chain scissioning. The chain scissioning inherently results in an increase in embrittlement because the applicant states in the specification that "one effect of chain scissioning is an increase in the brittleness of the polymer" and that the embrittlement provides a reduction in angel hair and feathering as required by **claim 10**.

4. Claims 1-10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heyes et al. (US 5582319) in view of Kremkau (US 4044187).

Heyes et al. (US 5582319) teaches a process where a can end is formed from a metal sheet and a thermoplastic polyester film (abstract).

Heyes does not teach scissioning the polymer chains by irradiating using electron beam to improve resistance to feathering and angel hair formation as required by **claims 1 and 16**.

Kremkau discloses a method for increasing bond strength, seal strength, and dimensional stability of film laminates by irradiating a polyolefin using an electron beam dosage of about 2- 20 megarads, forming a laminate, and then irradiating the entire laminate using an additional dosage between 2- 20 megarads (column 1,lines 6-9; column 3, lines 11-13 and abstract). Kremkau teaches that the laminates made using this process showed "superior" resistance to delamination and exhibits good dimensional stability under abusive conditions (column 4, lines 8-11). The laminates formed using this method are good for food products (column 4, lines 2 –6). Irradiating the crosslinked layer with a second radiation of 2-20 megarads will inherently result in the scissioning of polymer chains because the in the specification the application states that applying additional radiation of 2-20 megarads to an already crosslinked polymer will result in chain scissioning.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the process of Heyes et al. to include the step of irradiating polymer before and after the laminating process taught by Kremkau in order to increase its resistance to delamination. One would have been motivated to do so because Heyes et al. teaches a process using a metal sheet laminated with a polyolefin to form a can end and Kremkau teaches how performing the two irradiation increases bond strength which prevents delamination therefore one would have a reasonable

expectation of success in forming the can end with "superior" resistance to delamination.

Heyes et al. discloses that the metal sheets can be an aluminum alloy (abstract) such as AA3004 or AA5182 (column 1, lines 64-67 and column 3, lines 1-12) as required by **claims 2 and 3**. The metal sheet can be coated with a copolyester or a maleic anhydride graft modified polyolefin such as polypropylene (column 4, lines 60-65) as required by **claim 4 and 6**. In regards to **claim 5**, the applicant requires up to 50 mole percent of a co-monomer, this limitation includes 0 % therefore this claim is met by the prior art. The maleic anhydride is about 0.2 – 0.5% (column 5, lines 10-12) as required by **claim 7**. The metal can be roll coated or extrusion coated (column 4, lines 63-65) as require by **claim 8**.

As mentioned above the irradiation is performed using a dosage of about 2-20 megarads as required by **claim 9**. As established above, irradiating the already crosslinked polymer will result in chain scissioning. The chain scissioning inherently results in an increase in embrittlement because the applicant states in the specification that "one effect of chain scissioning is an increase in the brittleness of the polymer" and that the embrittlement provides a reduction in angel hair and feathering as required by **claim 10**.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cachet I. Sellman whose telephone number is 571-272-

0691. The examiner can normally be reached on Monday through Friday, 7:00 - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Cachet Sellman
Patent Examiner
Art Unit 1762

TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER